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ABSTRACT

This lesson plan was developed through "Economics International," an international program to help build economic education infrastructures in the emerging market economies. It provides a lesson description; appropriate age level; economic concepts; content standards and benchmarks; related subject areas; instructional objectives; time required for lesson completion; materials needed; a detailed step-by-step procedure for classroom implementation; closure questions; assessment exercises; and extension exercises. The lesson also contains a visual and three activity sheets. The lesson explores how gross domestic product (GDP) is determined and discusses its major components. (BT)

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National Council on Economic Education

Economics International

Active Learning Lessons

Gross Domestic Pizza

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ACTIVE LEARNING LESSONS: GROSS DOMESTIC PIZZA

Authors: Irena Zaleskiene (Lithuania), Anatoly Venger (Ukraine), Rich MacDonald (USA), and Debbie Davis (USA)

Description: This lesson explores how gross domestic product (GDP) is determined. The major components of GDP are described. Students create and compare GDP pie charts for the countries of Pepperonia and Anchovia.

Age Level: 12 - 14 years old

Economic Concepts:

- gross domestic product
- consumer goods
- investment goods
- government spending

Content Standard 18: A nation's overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy.

Benchmark 1, Grade 8: Gross Domestic Product (GDP) is a basic measure of a nation's economic output and income. It is the total market value, measured in dollars, of all final goods and services produced in the economy in one year.

Related Subject Areas: mathematics

Instructional Objectives: (Students will:)

1. Define gross domestic product.
2. Describe the difference between final and intermediate goods.
3. Identify the three major components of GDP.
4. Give examples of the GDP components.
5. Make comparisons of the GDP of different countries.

Time Required: one class period

Materials:

- transparency of Visual 1
- one copy of Activities 1 and 2, cards cut apart

- red, blue, and green clay - enough to cover two paper circles, one 8" diameter and one 11_" diameter - about 60% red, 30% blue, and 10% green
- one 11 _"-diameter paper circle (representing a pizza pan) marked into a pie graph with one 238° wedge labeled "C" and two 61° wedges with one labeled "I" and one labeled "G"
- one 8"-diameter paper circle with a 180° wedge labeled "C," a 144° wedge labeled "G" and a 36° wedge labeled "I"
- copy of Activity 3 for each student

Procedure:

1. Write the following definition of **gross domestic product (GDP)** on the board.

"Gross domestic product is the total market value of all final goods and services produced within the borders of a country in one year."

Point out that final goods and services are newly produced goods that have reached their final consumer; that is, they will not be resold to anyone else.

2. Display Visual 1, explaining that the first list provides examples of goods and services that have reached their final buyer during the year. Ask the following questions.

- Who buys haircuts, bread, and dresses? *(households, families, and individuals)*
- Who buys cruise missiles? *(government)*
- Who buys a new factory or builds up an inventory of unsold products, such as automobiles? *(businesses)*
- Using the second list ask the following What does the word "intermediate" mean? *(in the middle)*
- Why might window glass used in producing automobiles be called an "intermediate" good? *(An automobile manufacturer uses the window glass for a car that will be sold to a final buyer, so it is not a final good. It is used to produce the car which will become a final good.)*
- Have students explain why the other products are intermediate goods. (*All products are used to produce something else that will be sold to a final buyer.)*

3. Explain that GDP consists of three parts - consumer goods and services, government purchases of goods and services, and investment goods. *(Note to teacher: Exports and imports are ignored in this lesson.)* Write C, G, and I on the board. Define the three components as follows.

- **C** = family (household) spending on consumer goods and services
- **G** = government purchases of goods and services

- I = spending by firms and households on new capital such as factories, tools, inventory increases or decreases, and new houses

4. Have students categorize the final goods and services listed on Visual 1 according to the three components. *(Haircuts, bread, and dresses are C - consumer goods and services. A cruise missile is an example of G -government purchases of goods. A new factory and an increase in automobile inventories are examples of I - investment.)*

5. Divide the class into two equal groups, one representing the country of Pepperonia, the other representing the country of Anchovia. Give a card from Activities 1 or 2 to each student in each country. Explain that "parms" is the currency of these fictitious countries.

6. Have students determine the GDP component (C, G, or I) for their cards. Check for accuracy.

Pepperonia: C - compact discs, family minivan, bread, manicures, concerts, butter, doctor's services, candy bars, apples; I - new factory, increase in toy inventory; G = cruise missile, new roads, police protection

Anchovia: C - compact discs, bread, manicures, concerts, doctor's services, candy bars, butter; I - construction equipment, increase in toy inventory; G - new roads, cruise missile, police protection, education, national parks, state courts

7. Have each team calculate GDP for the country and then calculate each component's percentage share of total GDP.

Pepperonia: GDP = 150,000 parms where C = 100,000 parms (66%); G = 25,000 parms (17%); I = 25,000 parms (17%)

Anchovia: GDP = 75,000 parms where C = 37,500 parms (50%); G = 30,000 parms (40%); I = 7,500 parms (10%)

8. Give each student a handful of clay of the appropriate color where red is C, blue is G, and green is I. Tell students to create a clay model of the good or service on their cards. When students have completed their creations, have each student stand and show his or her good/service and explain why it is an example of C, G, or I.

9. Have students assemble in their groups and combine their clay creations to create a pie chart. Hold up the two paper circles and explain that the circles represent GDP. Ask which circle should represent Pepperonia, and have students explain their answers. *(Pepperonia will receive the 11 _"-diameter paper circle because it has a higher GDP. The area of the circle represents GDP.)*

Note to teacher: This is convenient time to review (pi r 2) as the area of a circle.

The area of the 8"-diameter circle is 3.14159(4)2 = 3.14159(16) = 50.26 square inches. The area of the 11 _" circle is 3.14159(5.5)2 = 3.14159(30.25) = 95 square inches which is about twice the size of the 8"-diameter circle. Pepperonia's GDP is twice as large as Anchovia's GDP - 150,000 parms and 75,000 parms, respectively.

10. Display the two pie charts. Have students compare them, and draw conclusions. (*Pepperonia spends a larger portion (percentage) of its GDP on consumer goods and investment than Anchovia. Anchovia spends a larger percentage of its GDP on goverment purchases than Pepperonia.)*

Closure: Discuss the following questions.

1. What is GDP? *(Gross domestic product is the total market value of all final goods and services produced within the borders of a country in one year.)*

2. Name the three components of GDP learned in this lesson. *(consumer goods and services, government purchases of goods and services, and investment goods)*

3. What is the difference between a final and an intermediate good? *(A final good is a good that has reached its final buyer. An intermediate good, such as steel, is used to produce another good, such as automobiles.)*

4. Give examples of consumer goods and services. *(clothes, food, furniture, jewelry, dental checkups, dry cleaning)*

5. Give examples of government purchases of goods and services. *(new roads and bridges, police and fire protection, national defense, education)*

6. Give examples of investment goods. *(factories, equipment, tools, new houses, changes in inventories)*

Assessment: Assign Activity 3.

Answers:
GDP = 121,000 rolas
C = 79,400 rolas (66%)

G = 25,300 rolas (21%)
I = 16,300 rolas (13%)

Extension:

1. Explain that the complete definition of GDP includes exports and imports. Exports are added to GDP and imports are subtracted.

2. Have students search on the Internet to find the Gross Domestic Product for their country and others.

Visual 1
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Visual 1

Final versus Intermediate Goods

Final Goods and Services

Manicures
Bread
Cruise missile
New factory
Dresses
Increase in automobile inventory

Intermediate Goods

Window glass in new automobiles
Lumber in a new house
Screws used in a cruise missile
Flour for making bread
Cloth for making dresses

Activity 1 Pepperonia

Compact Discs	Family Minivan	Bread
8,000 parms	50,000 parms	5,000 parms
Factory	Manicures	Concerts
24,000 parms	2,000 parms	1,000 parms
Cruise Missile	New Roads	Increase in toy inventory
10,000 parms	10,000 parms	1,000 parms
Butter	Books	Visits to Doctor's Office
1,000 parms	5,000 parms	20,000 parms
Candy Bars	Apples	Police Protection
5,000 parms	3,000 parms	5,000 parms

Activity 2 Anchovia

Compact Discs	Bread	Manicures
2,500 parms	2,000 parms	3,000 parms
Concerts	Visits to Doctor's Office	Candy Bars
1,000 parms	17,000 parms	10,000 parms
Butter	New Roads	Cruise missile
2,000 parms	7,500 parms	5,000 parms
Police Protection	Education	National Parks
5,000 parms	5,000 parms	2,500 parms
State Courts	Construction Equipment	Increase in toy inventory
5,000 parms	7,000 parms	500 parms

Activity 3 Assessment

Listed below are all items consumed in the country of Consumerola and the total spending on each item. In the space next to each item, classify the item as consumer goods and services (C), government purchases of goods and services (G), or investment goods (I).

	GDP ITEM	MARKET VALUE
_____	public library expansion	2,500 rolas
_____	canned fruits and vegetables	19,300 rolas
_____	frozen meats and fish	15,700 rolas
_____	dresses and suits	23,600 rolas
_____	park maintenance	8,200 rolas
_____	video rentals	5,200 rolas
_____	laundry services	4,100 rolas
_____	new fruit and vegetable warehouses	8,900 rolas
_____	new meat and fish freezing machines	3,200 rolas
_____	new roads and bridges and schools	12,100 rolas
_____	books	9,600 rolas
_____	construction equipment	2,400 rolas
_____	police and fire protection	2,500 rolas
_____	new housing	1,800 rolas
_____	furniture	1,900 rolas

Compute Consumerola's GDP for this year.

Calculate the GDP percentages for C, G, and I, and graph a GDP pie chart.

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